A NEW number of the *Internationales Archiv für Ethnographie* has been issued. It consists of Parts I. and II. of the second volume; and the contents, as in every preceding number of this excellent periodical, are full of interest for students of ethnography. There are three long articles—all in German. In the first, Dr. F. von Fuschan gives an instalment, carefully illustrated, of a paper on an amusement popular in Turkey, corresponding to the magic lantern. The second is an elaborate essay, also illustrated, by Dr. H. Schurtz, on knives made in various parts of Africa for the purpose of being thrown. In the third article, Mr. R. Parkinson, of New Britain, brings together many valuable ethnological facts relating to the inhabitants of the Gilbert Islands.

THE "Uses of Plants," by Prof. G. S. Boulger, which is about to be published by Messrs. Roper and Drowley, is a manual of economic botany, having special reference to vegetable products introduced during the last fifty years. It enumerates all vegetable substances in use in England as food, materia medica, oils, gums, rubbers, dyeing, tanning, and paper-making materials, fibres, timber, &c., both home-grown and imported; and there are short essays on the recent progress of vegetable technology in its various branches.

IN a Report lately received, Mr. W. Fawcett, Director of Public Gardens and Plantations, Jamaica, gives an interesting account of a visit of a few days to the Cayman Islands during May 1888. In an appendix he gives a list of the plants he collected, for the determination of which he expresses indebtedness to the authorities at Kew. "From this list," says Mr. Fawcett, "it will be seen that about 20 per cent. of the species are found more or less throughout the tropics. They are such as one might expect to find on any tropical island. It is interesting to note that one of the ferns (*Acrostichum aureum*) which is found growing to a height of 6 to 10 feet in swamps in Jamaica and throughout the tropics, was one of the first plants to establish itself on the Island of Krakatão, where the terrible volcanic disturbance completely destroyed every vestige of plant life. On its shore was also found the fruit of another plant occurring in the Cayman Islands, viz. the almond tree (*Terminalia Catappa*)."

AT a recent meeting of the Royal Asiatic Society of Japan, a paper was read by Dr. Seymour on the hygiene of Japanese houses, in which he disproves the common idea that dwelling-houses in that country are very unhealthy. A Japanese house, is, on the whole, suited to Japanese life. The extreme airiness of the structure prevents the charcoal fires doing the inhabitants any injury. Its chief defects can be easily remedied. The boarding of the floor can be made more close-fitting; ventilating panels should be used; the ceilings could with advantage be higher, and the drainage should be well looked after. Amongst foreigners there is distinctly more illness in brick and stone houses than in the wood or frame houses, on account of the damp remaining in the walls of the brick houses while it dries up almost immediately in the others. The remarkably small infant mortality amongst the Japanese shows that their houses are healthy and suited to their modes of life.

MR. F. A. HERON has been appointed an Assistant in the Zoological Department of the British Museum, not in the Geological Department, as stated (by a printer's error) in NATURE, vol. xxxix. p. 590.

THE additions to the Zoological Society's Gardens during the past week include two Macaque Monkeys (*Macacus cynomolgus* ♂ ♀), from India, presented by Mr. J. G. Mackie; two Caracals (*Felis caracal*) from Bechuanaland, presented by Captain Treville Cookson; a Ring-tailed Coati (*Nasua rufa*) from South America, presented by Mr. William Shiell; a Long-eared Owl (*Asio otus*), European, presented by Mr. Thomas B. Butler; three Orbicular Horned Lizards (*Phrynosoma orbiculare*) from Mexico, presented by Mr. T. H. Collins; a Rhesus Monkey (*Macacus rhesus* ♀), four Concave-casqued Hornbills (*Dichoceros bicornis* ♂ ♂ ♀ ♀) from India, a Crowned Hornbill (*Anthracoceros coronatus*) from Malabar, a Nepalese Hornbill (*Aceros nepalensis*) from Nepal, deposited; a Peacock Pheasant (*Polyplectron chinquis* ♂) from British Burmah, a Squacco Heron (*Ardea ralloides*) from Southern Europe, purchased; a Yellow-footed Rock Kangaroo (*Petrogale xanthopus* ♀), a Derbian Wallaby (*Halmaturus derbianus* ♀), born in the Menagerie.

OUR ASTRONOMICAL COLUMN.

THE APRIL METEORS.—Few of the April meteors appear to have been visible this year. They were watched for by Prof. Herschel at Croydon, Mr. Denning at Bristol, Mr. Backhouse at Hurworth (near Darlington), Mr. Monck at Dublin, and other observers. The shower of Lyrids was but weakly represented, and meteors generally were scarce. Several conspicuous ones were, however, recorded from the secondary streams of the April epoch. On April 20, at 10h. 16m., a meteor equal to Sirius was seen between Corvus and Virgo by Mr. Backhouse, and at the same time Prof. Herschel recorded a second-magnitude in Perseus. A comparison of the two paths shows the objects to have been identical, and the heights of the meteor at its beginning and end points, as computed by Prof. Herschel, were 50 and 46 miles respectively (over Derbyshire), which is much lower than usual. The radiant-point was at 301° + 34°. Another brightish meteor was seen on April 21, at 10h. 16m., by Prof. Herschel and Mr. Denning, and its heights were from 76 miles above a point near Newport, Monmouthshire, to 60 miles near Brecon. The radiant was at 217° - 2°, near μ Virginis. A fine meteor, quite equal to Venus, was observed at Bristol on April 27, at 8h. 51m., slowly descending in Hercules. Its path was from about 218° + 49½° to 249° + 32¼°. It left a trail of sparks as it fell, and its lustre fluctuated in a remarkable manner.

THE WHITE SPOT ON SATURN'S RING.—Prof. Holden reports that a careful examination of the ring of the planet with the great Lick equatorial on several evenings from March 2 to March 24 has resulted in the detection of no abnormal appearance in it. A kind of yellowish deformation or lump was indeed noticed close to the shadow on two or three occasions, but it proved to be due partly to bad definition, for it was only seen when the air was unsteady, and partly to contrast, for a similar appearance was produced in any part of the ring by the use of an occulting bar.

THE VARIABLE X CYGNI.—Mr. Yendall gives a new determination of the elements of this variable in *Gould's Astronomical Journal*, No. 191. Discovered by Mr. Chandler in 1886, it has proved a variable of very interesting character, and its light changes still require much study. The rise from minimum to maximum is generally sharp, but the interval varies much in length, the range being from 3·3 days to 8·7 days; the mean interval being 6·9 days. The curve is flat at minimum, and from these two circumstances Mr. Yendall has confined himself to the use of the maxima alone in the determination of his new elements. The decrease from maximum to minimum shows a remarkable halt, sometimes a positive rise, almost important enough to be considered a secondary maximum. Lastly, the magnitude touched at the extreme points of the curve varies from epoch to epoch, but with a general correspondence between the two phases, a bright maximum being accompanied by a bright minimum, and the contrary. A connection between the duration of the rise and the brightness at maximum has not yet been established. The elements given by Mr. Yendall are—

1886 October 10d. 6h. 11·8m. Camb. M.T. ± 52·3m. +
16d. 9h. 36m. 51s. ± 2·3s. E.

PHOTOGRAPHIC DETERMINATION OF THE BRIGHTNESS OF THE STARS.—No. 7 of vol. xviii. of the *Annals of the Harvard College Observatory* details the progress of the researches in stellar photography carried on at that institution by the assistance of the Bache fund, the particular direction in which the inquiry is being carried on being the determination of stellar magnitudes by means of photography. The present work is concerned with the determination of the brightness of the stars in three particular regions, each with special qualifications for the functions of standard stars; viz. 1000 close circumpolar stars, 420 stars in the Pleiades, and over 1100 equatorial stars. These three catalogues have been prepared with great care; the errors of the different photographic plates fully examined, and the relation of photometric to photographic magnitude investigated. The work

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therefore forms a most necessary and valuable introduction to a complete survey of the heavens on the same method. The instrument used was the Voigtländer photographic doublet, of 8 inches aperture and 44 inches focal length, so that the scale of the photographs was that of the atlas of the *Durchmusterung*, 2 centimetres to a degree. The images of the stars obtained on the plates were of different kinds, the clock sometimes being employed to drive the telescope when the stellar images were points or disks, sometimes the clock was stopped when trails were obtained, sometimes the clock was used but trails produced through the polar axis of the telescope not being parallel to that of the earth; indeed the adjustment of the polar axis was made in this way. The standard for measuring the stellar points was a photograph of the Hyades, the plate being exposed six times with exposures of 3 seconds, and 3^2, 3^3, to 3^6 seconds respectively. For measuring trails a plate was exposed to the polar region, and the aperture of the telescope varied to correspond to successive differences of a magnitude. The result of the careful and independent measurements of the plates showed that the measures of a skilled observer of the same star disk or trail did not vary on the average by so much as a tenth of a magnitude; so that if the errors due to the photographs themselves can be eliminated the photographic method of determining stellar magnitudes is at least as efficient as the best photometric methods. The comparison of the diurnal with the clock trails showed that the correction for declination to be applied to the former was only half 2·5 log cos δ, the value it should have had if the chemical action due to a certain amount of energy was independent of the time during which it acted.

The first of the three catalogues given in this work is that of the stars within 1° of the pole. Rectangular co-ordinates are given with the stars, instead of R.A. and declination. Of the 1009 stars included, 947 are within one degree radius from the pole, and nearly all are above the fifteenth magnitude. The catalogue of the Pleiades includes all of Wolf's stars between 3m. preceding, and 2m. following Alcyone, and 30′ north and 15′ south of that star with a few apparently overlooked by Wolf. The equatorial catalogue contains the stars within 2° of the equator. Ten different fields were photographed on each plate, one being exposed on the meridian, eight others right and left at intervals of 40m. hour angle, and the tenth on the polar region. A comparison of the results obtained brings out some interesting points. Tempel, at Marseilles, observing the Pleiades with a 4-inch telescope, reached fainter stars than Wolf at Paris with 12 inches aperture. The behaviour of photographic lenses of different apertures shows that to double the aperture is to command two additional magnitudes; to treble it, two and a half. A 24-inch aperture should, therefore, grasp stars below the seventeenth magnitude. A comparison of the photographic magnitudes with the Cordoba Catalogue, and the *Durchmusterung* gives distinct maxima for the residuals in the Milky Way, showing that the Catalogue magnitudes are too faint near the Galactic stream where stars are numerous.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1889 *MAY* 5-11.

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on May 5

Sun rises, 4h. 26m.; **souths, 11h. 56m.** 32·0s.; daily decrease of southing, 5·1s.; **sets, 19h 27m.: right asc. on meridian,** 2h. 50·7m.; decl. 16° 23′ N. **Sidereal Time at Sunset,** 10h. 22m.

Moon (at First Quarter on May 8, 7h.) **rises, 7h. 57m.; souths, 16h. 17m.; sets, 0h 35m.*: right asc. on meridian, 7h. 11·7m.; decl. 22° 41′ N.**

Planet.	Rises. h. m.		Souths. h. m.		Sets. h. m.		Right asc. and declination on meridian. h. m.		° ′
Mercury..	4 44	...	12 43	..	20 42	...	3 37·3	...	20 51 N.
Venus ...	3 44	...	11 24	..	19 4	...	2 17·8	...	17 59 N.
Mars ...	4 52	..	12 44	...	20 36	...	3 38·2	...	19 47 N.
Jupiter ...	23 46*	...	3 42	...	7 38	...	18 35·2	...	22 57 S.
Saturn ...	10 32	...	18 11	...	1 50*	...	9 6·6	...	17 47 N.
Uranus ...	16 46	...	22 15	...	3 44*	...	13 10·7	...	6 48 S.
Neptune..	5 18	..	13 4	...	20 50	...	3 58·3	...	18 52 N.

* Indicates that the rising is that of the preceding evening and the setting at of the following morning.

May.	h.	
5 ...	17 ...	Mercury in conjunction with and 1° 9′ north of Mars.
7 ...	22 ...	Saturn in conjunction with and 1° 28′ south of the Moon.

Saturn, May 5.—Outer major axis of outer ring = 41″·0: outer minor axis of outer ring = 11″·6: southern surface visible.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′			h. m.	
U Cephei	0 52·5 ...	81 17 N. ...	May	6,	1 52	*m*
			,,	11,	1 31	*m*
X Boötis	14 18·9 ...	16 50 N. ...	,,	10,		*m*
δ Libræ	14 55·1 ...	8 5 S. ...	,,	6,	23 51	*m*
W Herculis... ...	16 31·3 ...	37 34 N. ...	,,	6,		*m*
U Ophiuchi... ...	17 10·9 ...	1 20 N. ...	,,	6,	2 30	*m*
			,,	6,	22 38	*m*
U Aquilæ	19 23·4 ...	7 16 S. ...	,,	11,	1 0	*M*
S Vulpeculæ ...	19 43·8 ...	27 1 N. ...	,,	8,		*m*
η Aquilæ	19 46·8 ...	0 43 N. ...	,,	9,	1 0	*M*
S Sagittæ	19 51·0 ...	16 20 N. ...	,,	6,	22 0	*M*
S Aquilæ	20 6·5 ...	15 18 N. ...	,,	10,		*m*
X Cygni	20 39·0 ...	35 11 N. ...	,,	7,	2 0	*M*
T Vulpeculæ ...	20 46·8 ...	27 50 N. ...	,,	11,	23 0	*m*
δ Cephei	22 25·1 ...	57 51 N. ...	,,	8,	21 0	*m*

M signifies maximum; *m* minimum.

Meteor-Showers.

	R.A.	Decl.	
Near ε Crateris	170° ...	10° S. ...	Very slow.
,, η Ophiuchi	255 ...	20 S. ...	Slow; long.
,, ζ Draconis	260 ...	64 N. ...	Slow.

GEOGRAPHICAL NOTES.

THE discovery is announced of a new mouth of the Zambesi, forty-five miles south of the Quaqua, on which Quillimane is situated. The name of the river is Chindé. As we know already of a Chindé River which joins two of the principal mouths of the Zambesi, the probability is, not that a new mouth has been discovered, but that an already known mouth has been more completely explored. The Chindé, it seems, has a channel some 500 yards wide, with three fathoms of water at the lowest, and is therefore expected to afford a clear waterway to the main Zambesi.

FOR the last few years Baron Nordenskiöld has been engaged on a work of great importance in the history of geography, and especially of cartography. He has been collecting from the archives of various European countries specimens of the earliest printed (as distinguished from manuscript) maps, and some of his finds are really original discoveries. These he intends to reproduce in a great atlas with accompanying text, in which, among other things, he will describe and discuss the various editions of Ptolemy; of these he has formed a unique collection. The work will appear both in a Swedish and an English edition.

THE country of Oklahoma, about which we have heard so much during the past fortnight, is in the very heart of what is known as the Indian Territory, which lies between Kansas on the north and Texas on the south. Although on the Survey maps of the United States it seems to be well watered, the actual results would show that the water is not well distributed. It is traversed by the Canadian and Cimarron rivers, and between them are found on the map a perfect network of streams. The area of Oklahoma is a little over 3000 square miles, equal to about one-twentieth of the total area of the Indian Territory; the number of Indians in the latter is about 80,000.

IN an article in the May number of the *Fortnightly Review*, by Mr. F. C. Selous, the well-known South African hunter and explorer, we find a useful account of Mashonaland, around which at present there is so much interest. No man knows the country so well as Mr. Selous, who during the past ten years has traversed it in all directions. Mashonaland lies to the north-east of the Matabele country, and is described as a land of perennial streams, where thirst is an unknown quantity. The high plateau, which is of very great extent, forms the watershed between the Zambesi to the north and east, and the Limpopo and the Sabi

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